

1/2 029 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--USING THE ELASTIC PROPERTIES OF PLASTIC SLIDING BEARINGS -U-

AUTHOR--(02)-ALSHITS, I.YA., SNEGOVSKIY, F.P.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VESTNIK MASHINOSTROYENIYA, NO 2, 1970, PP 39-42

DATE PUBLISHED----- 70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL EFFECT, LUBRICATION TECHNIQUE, SLIDE BEARING, ELASTIC
STRESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3003/1867

STEP NO--UK/0122/70/000/002/0039/0042

CIRC ACCESSION NO--AP0130694

UNCLASSIFIED

USSR

AL'SHIN, B. I., et al, Kristallografiya, vol 17, No 3, 1972, pp 562-565

greater than the critical value, no marked change occurs in the magnetization curves, which fact is interpreted to mean that at temperatures below 39° K the spontaneous magnetic moment is maintained in a definite position by the internal antiferroelectric fields of the crystal.

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USSR.

UDC: 548.0:538.32

AL'SHIN, B. I., ZORIN, R. V., DROBYSHEV, I. A., and STEPANISHCHEV, S. V.

"Magnetic Characteristics of Lead Manganate Monocrystals"

Moscow, Kristallografiya, vol 17, No 3, 1972, pp 562-565

Abstract: The monocrystals whose magnetic characteristics are investigated in this paper have the formula $PbMn_2O_4$ and were grown from the solution $PbMn_2/3W_1/3O_3$ in a $PbO-PbF$ melt in the form of a truncated hexagonal pyramid with a height of about 1 mm and a length of 1.5-2.0 mm along a side of the hexagon. Magnetic measurements of the crystals were made by the Faraday method with twisting weights on a quartz thread in a cryostat to provide a temperature range of 1.5 to 300° K. The measurement results indicated that the material transformed to a weakly ferromagnetic state at a temperature of 63° K, with the spontaneous magnetic moment lying in the base plane of the crystal. Curves are given for the magnetization as a function of the magnetic field in which the crystals were placed and as a function of the field at various temperatures ranging from 30 to 53° K. Investigation of the effect of an electric field on the crystal's magnetic characteristics showed that for an electric field intensity $1/2$

2/2 029

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118775

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ZERO CREEP METHOD WAS USED TO MEASURE THE SURFACE TENSION OF SOLID COPPER WITH DIFFERENT PARTIAL VAPOR PRESSURES OF PB, BI, AND TL. THE ADSORPTION OF THESE VAPORS ON THE SURFACE OF SOLID COPPER WAS CALCD.; THE ADSORPTION ISOTHERMS FIT THE BET EQUATION FOR POLYMOL. ABSORPTION. CONSTS. WERE CALCD. AND ADSORPTION HEATS WERE EVALUATED AND ARE CLOSE TO THE CONDENSATION HEATS OF VAPORS OF THE CORRESPONDING ELEMENTS.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ADSORPTION OF METAL VAPORS ON SOLID COPPER -U-
AUTHOR-(03)-ALSHEVSKIY, V.S., GRIGORYEV, G.A., ZHUKHOVITSKIY, A.A.
COUNTRY OF INFO--USSR A
SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1), 234-8
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS
TOPIC TAGS--METAL VAPOR, COPPER, CREEP, LEAD, BISMUTH, THALLIUM, SURFACE
TENSION, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1811 STEP NO--UR/0370/70/000/001/0234/0238
CIRC ACCESSION NO--AP0118775
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC79

CIRC ACCESSION NO--AP0140379

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF AN APPROXIMATE ANALYTICAL METHOD OF CONSIDERING LARGE PERTURBATIONS EXPERIENCED BY A VEHICLE APPROACHING THE SPHERE OF INFLUENCE OF A PLANET. IN THE METHOD PROPOSED, THE PROBLEM IS REDUCED TO THE DETERMINATION OF A NEW INTERMEDIATE ORBIT DESCRIBED BY ELLIPTIC INTEGRALS.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CONSTRUCTION OF AN INTERMEDIATE ORBIT WITH ALLOWANCE FOR LARGE
PERTURBATIONS DURING THE MOTION OF A SPACE VEHICLE NEAR BOUNDARY OF THE
AUTHOR--ALSHEVSKIY, S.V. A

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKIE ISSLEDOVANIYA, VOL. 8, MAY-JUNE, P. 377-382

DATE PUBLISHED-----70

SUBJECT AREAS--SPACE TECHNOLOGY, PHYSICS

TOPIC TAGS--PERTURBATION, EARTH SATELLITE ORBIT, ELLIPTIC INTEGRAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/C09 STEP NO--UR/0293/70/008/000/0377/0382

CIRC ACCESSION NO--AP0140379

UNCLASSIFIED

USSR

UDC: 62.601.91

AL'PIN, Yu. A.

"On Partitions Producing by Probabilistic Automata"

V sb. Veroyatnost. avtomaty i ikh primeneniye (Probabilistic Automata and Their Use--collection of works), Riga, "Zinatne", 1971, pp 23-26 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V686)

[No abstract]

USSR

UDC: 577.4

AL'PIN, Yu. A.

"Condition of Stability of a Probabilistic Automaton"

V sb. Veroyatnostn. metody i kibernet. (Probabilistic Methods and Cybernetics--collection of works), vyp. 9, Kazan', Kazan' University, 1971, pp 3-5 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V450)

[No abstract]

USSR

100: 100.00

AL'PIN, L. N.

"A Procedure for electrical geological prospecting."

Moscow, Otkrytiya, Izobreteniya, Proizvedennyye Gerenty, Izvestnye Izv. No 11, 1970, Author's Certificate No 205691, filed 20 Nov 68, p 70.

Abstract: This Author's Certificate introduces a procedure for electrical geological prospecting by the method of induced polarization. An distinguishing feature of the patent, the precision of distinguishing the polarization and electrodynamic components of the field in a nonhomogeneous medium is improved by determining the difference or ratio of the voltages measured by natural installations which are used to judge the presence and magnitude of the induced polarization.

3/3 C34 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AT0139793
ABSTRACT/EXTRACT--SUCH APPROACH APPARENTLY GIVES RISE TO MORE APPROPRIATE
ADJUSTING OF EXPERIMENTAL DATA ON VARIATIONS IN THE THERMOSPHERE TO
PHASE OF SOLAR ACTIVITY IN 11 YEAR CYCLE AND SEEMS TO REFLECT BETTER THE
ACTUAL NATURE OF SUN EARTH RELATIONS.

UNCLASSIFIED

1/3 034 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--DENSITY VARIATIONS IN THE UPPER ATMOSPHERE AT 200-300 KM HEIGHTS
-U-
AUTHOR--(02)-MAKOV, F.YA., ALPHEROV, A.M. *A*
COUNTRY OF INFO--USSR
SOURCE--13TH SESSION OF COSPAR, LENINGRAD, MAY, 1970
DATE PUBLISHED----MAY70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--DIURNAL VARIATION, UPPER ATMOSPHERE, THERMOSPHERE, ATMOSPHERIC
MODEL, SOLAR ACTIVITY, ATMOSPHERIC DENSITY

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605006/E03 STEP NO--UR/0000/70/000/000/0000/0000
CIRC ACCESSION NO--AT0139793
UNCLASSIFIED

UDC 621.391.622

USSR

AL'PERT, Ya. L., ZABAVINA, I. N., KAPOSTINA, O. V., and FLIGEL',
D. S.

"Brusque Changes in Phase Velocity and Field Computations of Low-Frequency Waves in the Low-Altitude Spherical Waveguide"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Rauka," 1972 pp 188-192 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A321)

Translation: Results are given of computations of the amplitude and phase of electric-field radial components $|E_r(b,f)|$, $\Psi(b,f)$, of average $\bar{v}(b,f)$ and differential $v_g(b,f)$ phase velocities, in a low-altitude spherical waveguide for an isotropic conducting ionosphere and an infinitely conducting earth surface. Five illustrations, bibliography of six. A. L.

USSR

AL'PERT, V. N., Tr. Kuybyshev. aviats. in-t, 1970, No. 45, pp 255-260

of these loads. The condition of convexity of the surface of the limiting values of the load parameters is used to obtain the upper estimate. O. F. Chernyavskiy.

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USSR

UDC 539.374

AL'PERT, V. N.

"The Bearing Capacity of a Rotating Disc Under a Bending Load"

Tr. Kuybyshev. aviats. in-t (Works. Kuybyshev Aviation Institute), 1970, No. 45, pp 255-260 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6V437)

Translation: The geometrically linear problem of the limiting equilibrium of an ideally plastic disc of constant thickness under the action of centrifugal forces and symmetric and antisymmetric bending loads is considered. To obtain a lower estimate of the limiting parameters of these effects, it is assumed that the disc consist of three layers of constant thickness, symmetric relative to the middle plane. The middle layer is subject only to stretching forces from centrifugal forces in the plane of the disc and the two outer planes are subject to bending loads. The lower estimates of the limiting parameters in stretching and bending are determined independently for the corresponding layers (known solutions for plates of constant thickness are used); on the basis of the assumption of the constant thickness of the layers, the latter is excluded from the solution; a relationship is established between the limiting stretching and bending loads under simultaneous action

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Acc. Nr.: AN0104123

"A SERIES OF INVESTIGATIONS INTO THE DYNAMICS OF A BODY WITH FLUID-FILLED CAVITIES", /65-68/, BY N. N. MOISEYEV, A. A. PETROV, V. V. RUMYANTSEV AND F. L. CHERNOUSKO AND "ULTRA HIGH PRECISION JIG BORING MILLS WITH 1,000 X 1,600 AND 1,400 X 2,240 MM PLATENS", BY A. I. KIRYANOV, V. G. ABRAMOVICH, I. V. GUTKIN, A. S. ALIMPIYEV, G. B. PAUKOV, AND A. S. YEGUDKIN, HAVE BEEN SUBMITTED BY THE COMPUTATION CENTER OF THE ACADEMY OF SCIENCES AND THE MINISTRY OF THE MACHINE TOOL CONSTRUCTION AND TOOL INDUSTRY, RESPECTIVELY.

"THE RADICALLY IMPROVED MELTING TECHNOLOGY OF CRITICAL-PURPOSE HIGH-ALLOY STEELS AND ALLOYS OF IMPROVED QUALITY ACHIEVED BY THE INERT GAS TREATMENT OUTSIDE THE FURNACE", BY YU. V. GERASIMOV, O. M. CHEKHOMOV, N. V. SIDOROV, S. K. FILATOV, B. A. CHEREMNYKH, R. M. KHAYRUTDINOV, P. BARMOTIN, L. K. KOSYREV, K. P. BAKANOV, N. N. VLASOV, P. I. MELIKHOV, AND N. A. TULIN, HAS BEEN SUBMITTED BY THE ZLATOUST METALLURGICAL PLANT.

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Reel/Frame

19870556

KZ

Acc. Nr.: AN0104123

Ref. Code: UR 9003

TITLE-- ANNOUNCEMENT OF THE COMMITTEE ON LENIN AND STATE PRIZES, U.S.S.R.

NEWSPAPER-- IZVESTIYA, MAY 28, 1970, P 4, COLS 1-5

ABSTRACT-- NINETY ONE BASIC AND APPLIED RESEARCH WORKS HAVE BEEN NOMINATED FOR THE STATE PRIZES. TWO OF THESE, "THE MULTI-PURPOSE INDUSTRIAL HELICOPTER KA-26", BY N. I. KAMOV, V. B. ALPEROVICH, V. B. BARSHEVSKIY, A. A. DMITRIYEV, G. I. IOFFE, M. A. KUPFER, L. A. POTASHNIK, N. N. PRIOROV, A. G. SATAROV, I. M. VEDENEYEV, S. B. BREN, AND V. A. NAZAROV, AND "THE DEVELOPMENT OF TURBOFAN JET ENGINES NK-8 AND NK-8-4, AND THE DEVELOPMENT AND REDUCTION TO SERIAL PRODUCTION A SYSTEM OF TECHNOLOGICAL PROCESSES WHICH ASSURED WIDE USES FOR TITANIUM ALLOYS", BY N. D. KUZNETSOV, M. T. VASILISHIN, V. A. KURGANOV, P. M. MARKIN, V. D. RADCHENKO, P. A. SUKHOV, A. A. MUKHIN, V. G. SHITOV, G. I. MUSHENKO, L. A. SHKODO, AND G. P. DOLGOLENKO, HAVE BEEN SUBMITTED BY THE MINISTRY OF THE AVIATION INDUSTRY.

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Reel/Frame
19870555

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USSR

UDC 621.398.08

AL'PEROVICH, S.A., All-Union Scientific Research Institute of Drilling Technology

"Device for Transmission of Bottom-Hole Parameters Over Hydraulic Communication Channel"

USSR Author's Certificate No 294010, Cl. E 21 b 45/00, Filed 23 Oct 67, published 17 Mar 71 (From RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A340P)

Translation: A device for the transmission of bottom-hole parameters over a hydraulic communication channel is proposed which incorporates a data processor, mechanical relay, high-pressure and low-pressure cavities, and a hydraulic actuator containing an operating check valve. It is connected with a mechanical time relay containing cavities which are in communication through a throttle, a piston, and rod. The device is unique in that in order to increase the number of measured parameters it is supplied with a stop which is connected with the data processor and interacts with the mechanical relay, while one of the cavities of the time relay is in communication with the high-pressure cavity.

USSR

UDC 616.988.25-836.1

AL'PEROVICH, P. M., and RUDAYA, B. I., Chair of Nervous Diseases, Vinnitsa Medical Institute imeni Pirogov

"Clinical Forms and Course of Contemporary Epidemic (Lethargic) Encephalitis"

Moscow, Zhurnal Nevropatologii i Psikiatrii imeni S. S. Korsakov, Vol 70, No 8, 1970, pp 1129-1134

Abstract: Some 250 encephalitis patients ranging in age from 10 to 60 years were studied over the period from 1944 to 1968. It was found that contemporary epidemic encephalitis occurs in four clinical forms, lethargic, hyperkinetic, influenza-like, and vestibular. In pandemic periods, the disease occurs most frequently in its lethargic form, and the clinical picture is usually much milder. The hyperkinetic form is observed more frequently in nonpandemic periods, and its clinical symptoms during the acute phase are less pronounced. The influenza-like and vestibular forms are much more frequent during nonpandemic periods. In many cases parkinsonism develops without a preceding acute period. This condition is observed about eight times more frequently during nonpandemic periods.

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USSR

UDC 621.372.5.01.01

AVITYEV, V. I., MAKAROV, V. A., Y. VILKIN, E. S., MAKAROV, V. I.,
LEVROYEV, I. I., GORODYANOV, V. A., STANIKOV, A. B.

"Use of Liquid and Film Transmision Gates in a Gated System"

V sb. Kvant. Elektronika (Quantum Electronics--collection of works),
No 2, Moscow, 1971, pp. 42-43 (from KVA-izvestiya, 3, 7, 1971,
Abstract No 7414)

Translation: Data is presented on a transmission gate consisting of a thin
polymer film into which polymethylene dye is introduced, and on the use
of this gate in a GUP-1000 laser as a G-switch. Four references;
bibliography of five titles. Referred.

USSR

AVDEYENKO, V. I. et al., Experiments in Optics, No. 2, 1971, pp. 6-7.

with polymethylene dye solution. The new film gate described in this paper, which is a thin polymer film with polymethylene dye added to the film base, is most simple in use and provides comparatively high emission parameters in the GOS-1000 laser (50 J and 1.5 GW), has no optical components in its design, is suitable for use for long periods (6-10 minutes), can be turned repeatedly at comparatively low energies in the megajoule (10 J).

USSR

UDC: 621.378.3.01

AVDENEVA, V. I., AL'DERMAN, R. A., SEYDIN, P. A., LEVKOV, I. I., DEKHTAROV, V. A., SHARIN, A. P.

"Use of Translucent Liquid and Thin-Film Gates in the π -Electronics"

Moscow, Kvantovaya elektronika, No 2, 1971, pp 69-73

Abstract: The authors present data on a translucent liquid, the use of a thin polymer film to which polymethylene dye has been added, and in which that such a film gate can be used along with a liquid gate to obtain high-power monopulse excitation in the 0.01-1000 range. It is shown that film and liquid gates can be used for Q-switching modulators, lasers with a large output beam aperture (40 mm or more). The described gates are simple and can be used in serially produced integrated laser systems, in the analogous type GC-500 unit and others without any special modification in the construction of the device or in the power supply circuit. The highest energy and output power on the GC-1000 laser is 11.1 mJ and 100 W (80 J and 40 W) can be attained by using a gate with a beam diameter

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Acc. Nr:

AP0048361

Abstracting Service:

INTERNAT. AEROSPACE ABST 5-70 4R 02 93

Ref. Code:

A
A70-24309 # Estimation of the effect of local inhomogeneities on an ionospheric current system (Otsenka vlianiia lokal'nykh neodnorodnostei na ionosfernuu tokovuiu sistemu). L

A. Abramov and L. S. Al'perovich, *Kosmicheskie issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 80-84, 5 refs. In Russian.

Theoretical study of the problem of the flow of a homogeneous current past a circular spot in the ionosphere, taking into account Pedersen and Hall conductivities. An expression is obtained for the magnetic field on the earth's surface in terms of Lipshits-Hankel integrals. It is shown that the Hall conductivity essentially alters both the magnitude and the angle of rotation of the anomalous field vector.

A.B.K.

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REEL/FRAME
19800069

12

2/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0102173
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VALUES OF THE OPTICAL CONSTANTS, N
AND L (N EQUALS N-1K), OF LIQUID WATER AT 25DEGREESC OVER THE RANGE OF
1-1 TIMES 10 PRIME6 MU, OBTAINED UNDER OPTIMUM SELECTION OF EXPERIMENTAL
METHODS ARE TABULATED. KRAMERS KRONIG'S RELATIONSHIPS (KK) WERE USED.
FACILITY: STATE UNIV. V.I. LENIN OF TADJIKISTAN, DIOUCHAMBE,
USSR.

UNCLASSIFIED

1/2 033 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--DISPERSION AND ABSORPTION OF LIQUID WATER IN INFRA RED AND RADIO
FREQUENCY REGIONS -U-
AUTHOR-(04)-ZOLOTAREV, V.M., MIKHAILOV, B.A., ALPEROVITCH, L.I., POPOVA
S.I.
COUNTRY OF INFO--USSR
SOURCE--OPT. COMMUN. (NETHERLANDS), VOL. 1, NO. 6., P. 301-2 (JAN. 1970)
DATE PUBLISHED----JAN70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--IR ABSORPTION, ELECTROMAGNETIC WAVE DISPERSION, WATER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0083 STEP NO--NE/0000/70/001/006/0301/0302
CIRC ACCESSION NO--AP0102173
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127207

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELECTRONIC SPECTRA OF CHLOROPHYLL A IN SOLNS. AND FILMS WERE CALCD. BY MEANS OF THE LORENTZ AND ONSAGER MODELS. THE ONSAGER MODEL LEADS TO A SPECTRUM WHICH IS SHIFTED TOWARDS SHORTER WAVELENGTHS IN COMPARISON WITH THE EXPTL. ONE. WHEN THE ONSAGER RADIUS OF THE MOL. WAS ASSUMED TO BE 5-6.5 ANGSTROM, THE SPECTRA, CALCD. ON THE BASIS OF AN ISOTROPICALLY POLARIZED OSCILLATOR, WERE IDENTICAL FOR SOLNS. AND FILMS.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--CALCULATION OF THE INFLUENCE OF AN EFFECTIVE LIGHT WAVE FIELD ON
THE ELECTRONIC SPECTRA OF CHLOROPHYLL A SOLUTIONS AND FILMS -U-
AUTHOR-(02)-BABAYEV, T.B., ALPEROVICH, L.I.
COUNTRY OF INFO--USSR
SOURCE--DPT. SPEKTRISK. 1970, 28(4), 810-11
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, PHYSICS
TOPIC TAGS--CHLOROPHYLL, SPECTRUM, LIGHT RADIATION EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1793 STEP NO--UR/0051/70/028/004/0810/0811
CIRC ACCESSION NO--AP0127207
UNCLASSIFIED

USSR

UDC 535.324:547.97

BABAYEV, T. B., AL'PEROVICH, L. I.

"The Optical Characteristics of Dye Monomers and Dimers in Solutions"

Leningrad, Optika i Spektroskopiya, No 3, September 1970, pp 488-492

Abstract: Monomer-dimer equilibrium in concentrated dye solutions has been investigated on the basis of absorption spectra in a series of studies. Measurements of the absorption-coefficient and refraction-index spectra were conducted for rhodamine 6G, rhodamine B, and sodium eosin. The absorption spectra of the monomers and dimers of rhodamine 6G do not differ materially from the data of previous studies; but for rhodamine B and sodium eosin the absorption spectra differ quantitatively to a considerable degree from previously obtained data, while remaining in qualitative agreement with them. 4 figures, 1 table, 6 bibliographic entries.

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USSR

AL'PEROVICH, E. Ye. et al., Kibernetich. sistemy avtomatiz. proyektir., 1973, pp 29-35

solution (calculating the characteristics of the object, optimizing the mathematical expectation in satisfying probability limitations, etc.). 3) "Method of Solution" -- a set of programs for finding the global minimum of an arbitrary curve, minimizing multiparameter functions and numerically solving problems in nonlinear programming. 4) "Check" -- enables following and controlling the process of finding the optimum with respect to information which may appear at the output (alphanumeric printer, screen panel) as ordered by the operator. 5) "Output of Results" -- gives the results of optimization in the form of graphs and tables on a screen panel or on paper with the use of an alphanumeric printer or a "Konsul" typewriter. The last four modules are universal and do not depend on the type of optimization object. An advantage of the SABLE is the possibility for operative search for the optimum decision and the combination of the designer's experience and intuition with rigorous mathematical methods. In this connection, the design process can be carried out without knowledge of computer programming and the corresponding methods of search optimization.

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USSR

UDC: 62.74

AL'PEROVICH, E. Ye., BATISHCHEV, D. I., BASALIN, P. D., BEINAYA, P. I.,
KOROTCHENKO, A. G., KONYUGINA, L. A., KOLDORKINA, L. P., SEPEYENYA, H. M.,
SUKHAREVA, V. A.

"SAPPOR -- a System for Automating the Process of Making Optimum Decisions"

Moscow, Kibernetich. sistemy avtomatiz. proyektir.--sbornik (Cybernetic Automated Design Systems--collection of works), 1973, pp 24-35 (from *Elektronika*, No 7, Jul 73, abstract No 7V633 by A. Poroshenko)

Translation: SAPPOR is a dialog system oriented for making optimum decisions in the process of designing technical devices. The system is realized on the BESM-3M computer with two memory arrays, the second being designed for operation of a screen panel. The software of the system is based on the modular principle and has the following modules: 1) "Model" -- for constructing the mathematical model of the object being designed. This block is replaceable and varies depending on the class of the object of optimization. In developing the SAPPOR, RLC circuits were taken as models. 2) "Formulation of the Problem" -- a compiler which prepares classes of problems formulated by the designer for

Acc. Nr: **AP0044699**

A

Ref. Code: **UR0497**

PRIMARY SOURCE: **Klinicheskaya Meditsina, 1970, Vol 48,**
Nr 1, pp 105-109

**THE ROLE OF RHEOHEPATOGRAPHY IN THE DIAGNOSIS
OF LIVER ALVEOCOCOSIS**

B. I. Alperovich, A. P. Rodionova

Summary

Rheohepatography was employed for the first time for the diagnosis of alveococcosis of the liver. This investigation was carried out in 37 patients in whom the diagnosis of alveococcosis was confirmed operatively or by means of detailed clinico-laboratory examination. The authors established that in liver alveococcosis on rheohepatograms there are seen characteristic changes: a flattened form of rheographic curves with reduced voltage, shortening of the phase of rapid filling, decrease of the rheographic index and of the intrasystolic index of filling. Rheograms of the liver recorded in intact regions do not differ from that in healthy persons. The authors arrived at the conclusion that rheohepatography is of interest for out-patient examinations of the population for alveococcosis, being a valuable additional method of diagnosis.

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REEL/FRA
19771434

02 Feb

Acc. Nr: **AP0044598**

Ref. Code:
UR 0497

PRIMARY SOURCE: **Klinicheskaya Meditsina, 1970, Vol 48,**
Nr 2 , pp 79-84

**THE USE OF ALBUMIN IN CIRRHOSIS OF THE LIVER
AND PROTEIN DEFICIENCY CAUSED BY OTHER DISEASES**

Al'perin, P. M.; Zhorebtsov, L. A.; Zanchiv, A. A.

Summary

In 19 patients with liver cirrhosis and in 11 patients with protein deficiency, the authors instituted treatment by means of repeated drip infusions of 10% albumin solution. In 24 out of 30 patients the general state improved. In a number of cases there were noted an increase of the body weight and decrease of peripheral accumulation of greases and edema. Functional liver tests showed no essential changes. Repeated transfusions of albumin resulted in an increase and sometimes normalization of the total serum protein. According to data of paper electrophoresis this rise occurs at the expense of increase of the albumin fraction. The immunoelectrophoregram shows an intensification of those protein fractions, which in patients in the initial state were poorly marked (albumin, α_1 - and α_2 -globulins).

Albumin therapy is an effective means in treating protein deficiency and cirrhosis of the liver.

REEL/FRA
19771274

DI 02

USSR

UDC: 531.1

AL'PERIN, L. B. and SHPIL'BERG, I. Ya.

"Free Movement of a Gyroscope with Flexible Axis on a Movable Base"

Sb. Nauchn. tr. Novosib. elektrotehn. in-t (Scientific Transactions of the Novosibirsk Electrical Engineering Institute--collection of works) 1970, No. 2, pp 144-161 (from Elektronika, No. 2, Feb 71, Abstract No. 2A77)

Translation: The equations of motion are given for an inertially symmetrical gyroscope with a flexible axis, set up on a movable base, with nonlinear internal friction forces, periodic components of transmitted accelerations of the base, and other disturbing factors taken into account. By means of these equations, on the basis of asymptotic methods of the theory of nonlinear oscillations, a study is made of the various modes of the gyroscope motion including transient ones (in transitions through fundamental and parametric resonance). The paper considers a symmetrical gyroscope with a flexible axis under a longitudinal compressive force caused by a slowly varying component of the longitudinal progressive acceleration of the base. V. V. Kromentz

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USSR

UDC 616.003.87+616.5-003.8717-085.849.19.015

LAZAREV, I. R., EPSHTEYN, A. B., POLISHCHUK, YE. I., and ALPATYEVA, S. YU.,
Kiev Institute of Experimental and Clinical Oncology, Ukrainian Academy of
Sciences

"Laser Treatment of Bowen's Disease Associated With Fungus"

Kiev, Vrachebnoye Delo, No 4, 1972, pp 133-135

Abstract: Description of a case history of a 55-year-old female who had been suffering for 12 years from Bowen's disease (diagnosis histologically confirmed) did not respond to steroid or antibiotics therapy. Examination of biopsy material revealed the presence of the fungus Geotrichum. Eleven lesions on the abdomen, buttocks, back, upper and lower extremities were exposed to laser rays (total energy on each lesion 910 to 2760 joules). Coagulation necrosis occurred in each lesion in the form of a dry crust with slight edema, and hemorrhage and erythema of the surrounding tissue. These phenomena gradually subsided and the crusts darkened, became compact, and fell off within 3 to 5 weeks, leaving a pink smooth scar at the exposure site. Analysis of the blood and urine showed no abnormalities. No new lesions or traces of Geotrichum were detected in the follow-up period (duration not specified).

1/1

USSR

ALPAT'YEV, Yu. S. et al., Priory i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 159-160

potentiometer. The masses being analyzed can be recorded either in the panoramic mode or in a mode where the peak intensity is tracked (there is a relative change in the concentration of one component) as layers of the study specimen are successively removed by the primary ion beam. Masses from 1 to 250 can be analyzed with a mass-spectral resolution of 250 atomic mass units. Reproducibility of results is 10% in a working vacuum of 10^{-6} mm Hg.

USSR

UDC: 543.51

ALPAT'YEV, Yu. S., DUBINSKIY, I. N., OL'KHOVSKIY, V. I., FILIPENKO, A. P.,
CHEREPIN, V. T.

"A Mass Spectrometer for Analyzing Solids"

Moscow, Priroda i Tekhnika Eksperimenta, No 3, May/Jun 72, pp 159-160

Abstract: A mass spectrometer based on the effect of secondary ion emission is developed for elementary and isotopic analysis of solids, specifically layer analysis of thin films of metals, semiconductors and dielectrics. The instrument consists of an ion source with ion-optical system of focusing and beam deflection, a turret chamber which holds the specimen, an immersion type objective lens, and a single-field rf mass spectrometer. The primary beam is accelerated to 4-14 keV and focused on the specimen to a spot with an area of 0.5-6 sq. mm. The secondary ions are collected, accelerated and prefocused by the immersion objective lens whose cathode is the specimen. The energies of the ions entering the mass spectrometer are controlled by changing the voltage across the specimen. Another lens focuses the beam of secondary ions into the input aperture of the mass spectrometer. The current of the secondary ions impinging on the collector is amplified by an electrometric amplifier and registered by an electronic

USSR

UDC 547.26'118.07

VERSHININ, P. V., ALPATOVA, R. I., SANOYLOVA, A. N.

"A Method of Purifying Commerical Butyphos"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 15, Apr 73, Author's Certificate No 374323, Div C, filed 12 Jan 71,
published 20 Mar 73, p 52

Translation: This Author's Certificate introduces: 1. A method of purifying
commerical Butyphos with the distinguishing feature that the quality of
the finished product is improved by treating commerical Butyphos with super-
heated steam. 2. A modification of this method distinguished by the
fact that the process is carried out at atmospheric pressure and at 100-
110° C. 3. A modification of the method covered in point 1, distinguished
by the fact that the process is carried out at a pressure of 50-100 mm Hg
at 60-100° C.

USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh
 Soyedineniy Alyuminiya, Moscow, Nauka Press, 1970, 296 pages

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USSR

UDC:661.862(541.444+546.12):541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh
 Soyedineniy Alyuminiya, Moscow, Nauka Press, 1970, 296 pages

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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh
Soyedineniy Alyuminiya, Moscow, Nauka Press, 1970, 296 pages

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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh
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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i
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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i
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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P.,
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USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSTPOV, O. P.,
 MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i
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3/10

USSR

UDC:661.862(541.444+546.12);541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., CSITOV, O. P.,
MASLIN, D. N., Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh
Soyedineniy Alyuminiya, Moscow, Nauka Press, 1970, 296 pages

in the electrolysis of melts and solutions and problems of practical
electrodeposition of aluminum and electrochemical synthesis in non-
aqueous media are discussed.

The book is designed for a broad range of persons interested in
general problems of complex formation, chemicals operating with
organic aluminum and hydride compounds, and electrochemists special-
izing in non-aqueous solutions. The broad range of factual material
allows the book to be used as a reference work as well. 94 tables;
45 figures; 1,697 biblio. refs.

2/10

USSR

UDC:661.862(541.444+546.127:541.49

ALPATOVA, N. M., GAVRILENKO, V. V., KESSLER, Yu. M., OSIPOV, O. P., and
MASLIN, D. N.

"Complexes of Organometallic, Hydride, and Halide Compounds of Aluminum"

Kompleksy Metalloorganicheskikh, Gidridnykh i Galoidnykh Soyedineniy
Alyuminiya [English Version Above], Moscow, Nauka Press, 1970, 296 pages

Annotation: This book deals with the physical and chemical properties and synthesis of complexes of aluminum formed of its organic, hydride, and halide compounds with organic and inorganic addends. Particular attention is given to the molecular structure of the complexes and the strength of bonds in them. The spectral characteristics of complexes and the role of complex formation in the synthesis of compounds of aluminum and their solubility are analyzed. Plans of the dissociation of complexes in the liquid phase are discussed, and the nature of ions is analyzed in detail. Cathode and anode processes

i/10

USSR

UDC 547.233

KESSLER, YU. M., FOMICHEVA, M. G., ~~ALPATOVA, N. M.~~, and YEMELIN, V. P.,
Electrochemical Institute, Academy of Sciences Institute of Chemical
Mechanical Engineering, Moscow

"Certain Physical and Structural Characteristics of Hexamethylphosphoro-
triamide"

Moscow, Zhurnal Strukturnoy Khimii, Vol 13, No 3, May/June 72, pp 517-519

Abstract: Hexamethylphosphorotriamide (HMPT) (tris(dimethylamino)phosphine oxide $(CH_3)_2N_3PO$) is an important organic solvent, of special interest due to its use as a medium for the study of electron behavior in condensed phases. Three physicochemical properties of the solvent were measured. Using a pycnometer, the specific gravity was determined to be 1.0002 at 25°C and 1.0327 at 10°. The viscosity, measured with an Ostwald viscometer, was reported as 3.24 centipoise at 25° and 4.50 centipoise at 10°. The dielectric constant was measured at 200 kilohertz by phase displacement with compensation for carbon. The results were 30.02 at 25° and 32.6 at 10°. A comparison of the molecular and molar volumes of several liquids with those of HMPT suggests a structure other than close packing. Further comparison of the function inverse times temperature derivative for dielectric constant and specific gravity implies that HMPT has a labile structure with a dipole character.

1/1

Electrochemistry

USSR

UDC 541.13

PAVLOV, Yu. V., FOMICHEVA, M. G., MISHUSTIN, A. I., and ALPATOVA, N. M.,
Institute of Electrochemistry, Academy of Sciences, USSR, Moscow State
University Imeni M. V. Lomonosov

"Dynamic Polarization of Hexamethylphosphoric Triamide Protons by Electro-
chemically Generated Solvated Electrons"

Moscow, Elektrokimiya, Vol 9, No 4, Apr 73, pp 541-543

Abstract: Existence of solvated electrons has been suspected on the basis of some NMR data. In this study an attempt was made to use dynamic polarization to identify these electrons. Dynamic polarization is based on changing the intensity of NMR signals lightly connected with the unpaired electrons, by saturating the NMR transitions with UHF power. The study was carried out on hexamethylphosphoric triamide in LiCl and NaBr solutions. On the basis of the data from dynamic polarization, spectra and relaxation times, a conclusion was reached that in the system under investigation a very weak intermolecular superfine scale interaction takes place, indicating the presence of solvated electrons rather than the $\{[(CH_3)_2N]_3PO\}^-$ type anion radicals.

1/1

USSR

UDC 911.3.616.986.7(571.14)

RAYKHLIN, M. I., CHULOVSKIY, I. K., and ALPATOVA, G. N.

"Problem of Sporadic Leptospirosis Incidence Among the Population of the Kolyvanskiy Rayon in Novosibirskaya Oblast"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology -- collection of works) Vyp. 2. Omsk, 1970, pp 148-149 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.88)

Translation: In 1968, 32 population points where leptospirosis was not recorded were studied retrospectively. Blood serum was investigated in 147 people who had suffered febrile disease similar clinically to leptospirosis in the May-September period. In 37 cases, serum was found containing antibodies to *Leptospira* of serogroups: *poona*, *australis*, *bataviae* and *tarasovi* in 1:100-1:1,000 titers.

USSR

UDC: 621.373:530.149.6

ALPATOV, Yu. V., DEMILOV, M. N., MEDVEDEV, V. D., SEDOV, G. S., SIBIREV, A. V.

"A Single-Mode Gas Laser With Stabilization of Emission Power"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, vyp. 2(18), pp 64-70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D265)

Translation: The paper describes a single-mode helium-neon gas laser which has stable emission power and stable position of the optical axis.

USSR

UDC 620.172.24

ALPATOV, Ye. N. and RIZOL', A. I., All Union Scientific Research and Design Technology Institute of the Pipe Industry, Dnepropetrovsk

"On a Method of Determining Actual Strength in Ductile Fracture"

Moscow, Zavodskaya Laboratoriya, Volume 6, 71 pp 713-718

Abstract: Tension fractures of annealed or cold worked cylindrical steel samples show a characteristic double cone or cone and cup structure. Examination shows that the cone is divided into three basic zones: a central plateau, steeply sloping sides and a less steeply sloping periphery. Each of these zones has its own characteristics. In these experiments, particular attention was paid to impact hardness. Measurements were made of samples at various stages of breakdown as well as of broken samples, with particular attention to obtaining uniform, repeatable results. Statistical processing of these results shows a clear pattern of increasing hardness from the center of the sample to the periphery. This is the direction of propagation of the primary fracture. The pattern contradicts the assumptions of GOST (State Standard) 1497-61.

1/1

Acc. Nr:

AAO108728

Abstracting Service:

Ref. Code:

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

228204 ROTATING DEVICE FOR TUBES DURING WELDING has rotary drums driven by chain and sprockets. To accommodate tubes of various diameters, one drum and its drive is carried on a hinged lever (hence variable for angle).

19.5.67 as 1156671/25-27. O.A.STEPANOVSKIY, V.A.SHATAIK-IN, B.A. MOROZOV et al. (27.8.69) Bul 31/8.10.68. Class 21h. Int.Cl. H 05b.

AUTHORS: Stepanovskiy, O. A.; Shataykin, V. A.; Morozov, B. A.;
Alpatov, A. Ya.

1/1

REEL/FRAME

19900507

18
BS

USSR

UDC: 621.317:621.373

ALPAROV, A. U., PIOTROVSKIY, V. A.

"A Low-Frequency Measurement Oscillator"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, v. 121, pp 76-81 (from RZh-Radiotekhnika, No. 11, Nov 70, Abstract No 11A335)

Translation: A block diagram is given for a measurement oscillator with a relative instability of $\pm 5 \cdot 10^{-5}$ and a coefficient of nonlinear distortion of 0.1%, and circuits are given for a quartz oscillator, frequency divider, and active narrow-band RC filter. The quartz oscillator contains a 2-5 kHz resonator. The frequency divider is constructed on the basis of semiconductor flip-flops in a counter circuit. The filter utilizes a double-T bridge. All are vacuum-tube circuits. Four illustrations, bibliography of three titles.
E. L.

1/1

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137947

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (1,PHENYL,VINYL)PHOSPHONIC ACID WAS COPOLYMD. WITH 1,VINYL,2,PYRROLIDINONE IN SEALED GLASS AMPULS IN THE PRESENCE OF 1 WT. PERCENT AZOBISISOBUTYRONITRILE AT 80DEGREES IN N. COPOLYMERS WERE PPTD. WITH ET SUB2 O FROM CHCL SUB3 OF ME SUB2 CO SOLNS. AND THEIR CHEM. COMPN. DETD. COPOLYMERS WERE AMORPHOUS, SOL. IN H SUB2 O, LIGHT YELLOW TO RED BROWN, AND OF AMPHOTERIC CHARACTER. THE VISCOSITY CURVE OF DIL. AQ. SOLNS. OF COPOLYMERS IN H SUB2 O VS. PH INDICATED THE KETO,ENOL TAUTOMERISM OF THE LACTAM RINGS.
FACILITY: INST. KHIM., TASHKENT, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--CARBON CHAIN COPOLYMERS CONTAINING PHOSPHORUS, NITROGEN, AND OXYGEN
HETEROATOMS -U-
AUTHOR-(03)-KUCHKAROV, A.B., ALOVITDINOV, A.B., KHAMDAMOVA, D.K.

COUNTRY OF INFO--USSR

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COMPOUND, PYRROLIDINE, KETONE, TAUTOMERISM, LACTAM

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DOCUMENT CLASS--UNCLASSIFIED

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STEP NO--UR/0291/70/014/002/0078/0080

CIRC ACCESSION NO--AP0137947

UNCLASSIFIED

USSR

UDC 632.95

NOVRUZOV, Kh., KUCHKAREV, A. B., ALOVITDINOV, A. B., and SARANKINA, S. A.

"Method of Preparing tert-Alkyl Phenols"

USSR Authors' Certificate No 259903, filed 17 Jul 68, published 7 May 70
(from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N608P)

Translation: tert-Alkyl phenols which can be employed as herbicides and fungicides are obtained by the alkylation of PhOH with tertiary alcohols a in the presence of polyphosphoric acid (I) at $\leq 200^\circ$. This increases the selectivity of the alkylation as compared with other acid catalysts. In a device with a DIN-STARK [transliterated from the Russian; possibly DEAN-STARK] cap, 0.6 mole tert-BuOH is added dropwise to 0.5 mole PhOH containing 1-3% I at $145-150^\circ$ with stirring. After heating for 15 min, the mixture is cooled, rinsed off from I with water, and 4-tert-BuC₆H₄OH is separated by distillation, yield 98%, melting point $96-8.5^\circ$ (heptane).

USSR

UDC 669.716:621.791.011

ALOV, A. A., FILATOV, Yu. A., and LEVCHENKOVA, L. A.

"The Effect of the Production Technology of Deformed Semifinished Products of the AMg6 Alloy on Their Weldability"

Metallovedeniye Splavov Legkikh Metallov--Sbornik, Moscow, "Nauka", 1970, pp 37-42, resume

Translation: The effect of microlaminations and hydrogen in deformed semifinished products of AMg6 alloys on their weldability was investigated. A method for checking the sensitivity of semifinished products to the formation of pores in near-seam zones is recommended. Seven figures, ten bibliographic references.

1/1

- 64 -

USSR

UDC 621.791.539.217.1.669.715.767

ALOV, A. A., FILATOV, Yu. A., LEVCHENKOVA, L. A.

"Porosity of Welded Joints in Aluminum Alloys"

Kiev, Avtomaticheskaya Svarka, No 1, Jan 73, pp 70-71.

Abstract: Transmission x-ray studies of joints in aluminum-magnesium alloys made by argon-arc welding have shown pores along the edges of the seams in certain cases. Studies have established that the porosity results from the following processes: 1) during welding, the liquid metal partially flows onto the unmelted surfaces of the edges, covered with a hydrated oxide film. The film is dehydrated with liberation of hydrogen and formation of pores, generally spherical in shape. 2) welding of clad items (sheets and plates) with incomplete removal of the cladding layer results in the development of porosity in the near-seam zone due to unsatisfactory attachment of the clad layer to the base metal. 3) pores are observed along side the seam in high temperature areas in the form of trains along the fibers of the welded goods. This defect results from the presence of discontinuities -- microstratifications and increased concentration of hydrogen in the goods being welded -- as well as strong overheating of the metal, reducing its strength and facilitating the diffusion of hydrogen.

1/1

USSR

UDC 669.721.042.6(088.8)

TAGAKIN, A. N., KORZNIKOV, V. M., BELKIN, G. I., ~~ALONTSEV, V. S.~~, PROVODNIKOV, A. A., MAZUROV, G. A., TITAYEV, I. A., PUTINA, O. A., MATSU, N. V., BOCHKAREV, G. V., NAGIBIN, V. M.

"Method of Processing of Magnesium Ingots"

USSR Author's Certificate No 313908, filed 16/03/70, published 10/11/71, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G248 P by G. Svodtseva).

Translation: A method of processing of Mg ingots including transportation, cooling, mechanical working, washing, etching, drying and covering with a protective layer **is proposed.** In order to reduce the labor expenditures for the process and process time, the ingots are subjected to forced cooling to 450-100°, mechanically worked during transportation, and washed at 350-100°. This reduces labor consumption, decreases the time of the process, and increases the productivity of labor by 40-80%.

USSR

UDC 621.396.677

ALONINA, A. I., ANDRUSENKO, A. M., SIDORENKO, B. G.

"Lattice-Type Arrays on Dielectric Substrates"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radio Engineering, Republic Interdepartmental Thematic Scientific and Technical Collection), 1972, vyp. 20, pp 127-131 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6635)

Translation: The method of direct summation of multiple reflections was used to obtain values of the reflection and transition coefficients in the form of infinite series for the structure comprising two lattice-type arrays each of which is arranged on a dielectric layer. The solution is correct for the case of the long-wave approximation (the period of each array is less than the wavelength), and the spacing between the dielectrics exceeds the distance at which the harmonics damp by e times. By using the previously developed procedure, the infinite series are contracted. The amplitude and polarization characteristics of the investigated structure were calculated on a computer as a function of the parameters of the structure. The results are presented in the form of graphs. There are 2 illustrations and a 4-entry bibliography.

1/1

USSR

TSONEVA, T. M., et al., Fiziologicheskii Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 33-37

at maximum tempo or exercises on a bicycle stand. The condition of the neurodynamics under conditions of muscular activity was assessed by shifts in the rapidity of development of sensori-motor reactions. The investigations established that the young athletes are able to endure physical loads greater than those endured by the young people not participating in light athletics, mainly due to activation of cortical structures and improved basic neurodynamic indexes. There is an improvement in the reactivity of the central nervous system permitting the performance of a maximum volume of physical activity at a moderate tempo, which also indicates the greater endurance of young sportsmen as compared with that of the control group.

USSR

UDC 612.82/.83-053.6.796

TSONEVA, T. M., AL'OKHINA, G. F., DANYLYUK, V. P., and
DUDNYK, A. I., Laboratory of Age Physiology of Sports, and
Chair of Human Anatomy and Physiology, Odessa Pedagogical
Institute

"Shifts in the Functional Activity of the Central Nervous System
in Young Sportsmen"

Kiev, Fiziologicheskii Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 33-
37

Abstract: The youths -- 11-12 years of age -- participating in
the investigations were divided into two groups, with group one,
the experimental group, consisting of young people engaged in
training for light athletics, and a control group consisting of
youths not engaged in sports except for exercises prescribed in
the school program. The reactivity of the central nervous system
in group one was determined by shifts in the bioelectric activity
of the cerebral cortex as recorded by the electroencephalograph
in the 1st, 5th, 10th, and 15th minute after a ten-second run
1/2

USSR

ALODZHANTS, G. P. and SILIN, V. P., Physics Institute imeni P. N. Lebedev,
USSR Academy of Sciences

"Spin Waves in Nonferromagnetic Metals with Open Fermi Surfaces"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14,
No 5, 5 Sep 71, pp 351-354

Abstract: Spin waves in nonferromagnetic metals, as predicted by the theory of a degenerate electron liquid, have been experimentally detected in alkali metals whose Fermi surface is almost spherical. At the same time, such spin waves may also exist in metals with sharply anisotropic Fermi surfaces. In previous articles the major attention has been paid to spin waves in closed Fermi surfaces. In this article the authors are concerned with open surfaces which lead to the presence of open electron paths in the space of the impulses; they give the essential characteristics of spin waves in such metals. They note that when the frequency is zero in the limiting wave vector, this is an indication of the possibility that a spatially periodic paramagnetic structure exists which, unlike that studied by Silin in a previous issue of this journal (11,419, 1970), is periodic in the direction across the constant magnetic field. The article contains 8 bibliographic entries.

1/1

USSR

UDC: 538.4

AL'-MASAN, I. K., et al, Magnitnaya gidrodinamika, No 1, 1973, pp 129-134

mode in which the average radius of the collar is equal to half the sum of the pin and bearing radii yields the highest increase in lifting force for the MHD bushing with floating collar.

USSR

UDC: 538.4

AL'-NASAN, I. K. and TEREKHOV, L. P.

"Radial Magnetohydrodynamic Bearing With Floating Collar"

Riga, Magnitnaya gidrodinamika, No 1, 1973, pp 129-134

Abstract: The steady-state problem of lubricating a cylindrical magnetohydrodynamic bushing of infinite length with a freely floating collar is considered in this paper. The effect of an ideally conducting collar on the basic characteristics of the MHD bushing is investigated, with the inertial terms neglected, in the equations of motion of the lubricant, with a Reynolds number much less than unity, and in an induced magnetic field when the magnetic Reynolds number is less than unity. The lubricant is assumed incompressible, and the gaps in the bushing as well as the collar thickness are small compared to the radius of the shaft. Consideration is given to the case in which a constant difference in electrical potential is applied to the ideally conducting surfaces of the bearing and pin. It is found that an external magnetic field accelerates the rotation of the collar floating freely in the lubricated gap, that the MHD bushing and collar system is better than the bushing with neutral lubrication, and that the operation

1/2

AL'MYASHEV, S. S.

Article by S. S. Al'myashov, Ye. A. Gerasimov, and V. I. Lebedev, Moscow, Kosmopolitnaya Meditsina, No. 1, 1972, pp. 86-89, submitted for publication in March 1972.

U.S. AIR FORCE TRANSLATION

SPAS 56050
18 May 72

Abstract: This paper reports on the results of a series of experiments on the perception of a complex visual field and limited flight. The aim of the experiments was to determine the effect of a complex visual field on the perception of the flight (space flight). The results of the experiments on the complexity and the nature of the task to be performed, that is, on flight simulation, showed a well-defined effect of the complexity of the task on the perception of the flight. The results of the experiments on the perception of the flight (space flight) showed that the perception of the flight (space flight) is affected by the complexity of the task to be performed. The results of the experiments on the perception of the flight (space flight) showed that the perception of the flight (space flight) is affected by the complexity of the task to be performed. This results in a decrease of the perception of the flight (space flight).

One of the important conditions for the successful performance of a flight mission is the quality of the flight (space flight) perception. The perception of the flight (space flight) is affected by the complexity of the task to be performed. The results of the experiments on the perception of the flight (space flight) showed that the perception of the flight (space flight) is affected by the complexity of the task to be performed. This results in a decrease of the perception of the flight (space flight).

It is well known that emotional excitation exerts a considerable influence on the time perception process (M. P. Fendrikov, N. S. Kikini, A. A. Leonov and V. I. Lebedev, D. D. Shermak, and others). Accordingly, researchers in the field of aerospace medicine were faced with the problem of the

USSR

UDC 669.295.476

DRACHEVSKAYA, R. K., ALMAZOVA, N. G., LUKINA, A. G.

"Production of Titanium from Anhydrous Media on a Mercury Cathode"

Nauch. tr. Kazakhsk. Politekhn. In-t [Scientific Works of Kazakh Polytechnical Institute], Alma-Ata, 1971, pp 548-550, (Translated from Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G263 by G. Svodtseva).

Translation: A 10% solution of $TiCl_4$ in isobutyl alcohol, with 1 volume of ethylene glycol added to 2 volumes of the solution, was electrolyzed. Each g was poured onto the bottom of the electrolyzer, acting as the cathode, while the anode was a Pt plate. The current density of the cathode was about 440 a/m^2 . Electrolysis time 1 hour. Metallic Ti was separated as a finely dispersed black sediment on the surface of the Hg. Following electrolysis, the sediment was washed and filtered by decantation in isobutyl alcohol. Only about 2% of the metal Ti was extracted from the initial solution.

USSR

UDC 621.317.7:621.391.822

ALMAZOV-DOLZHENKO, K. I., IOSILEVICH, N. N.

"Application of P-I-N Modulators when Measuring the Noise Coefficient of Super-high Frequency Amplifiers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Engineering. Scientific and Technical Collection. Microwave Electronics), 1970, vyp. 12, pp 99-110 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A269)

Translation: Application of modulators based on p-i-n diodes in noise coefficient meters permits elimination of the measurement error as a result of the effect of feed modulation on the operating conditions of the amplifier reaching 10-20%. It also permits use of a noise generator in the continuous operating mode, which simplifies the procedure for testing it with respect to noise level.

2/2 026

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0112457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCULATION OF THE MICROWAVE CONDUCTANCE TENSOR IN CRYSTALS WITH A NONPARABOLIC LAW OF CARRIER ENERGY DISSIPATION IN THE PRESENCE OF CROSSED CONSTANT ELECTRIC AND MAGNETIC FIELDS. THE ANALYSIS IS PERFORMED ON THE BASIS OF A KINETIC EQUATION LINEARIZED WITH RESPECT TO THE ELECTRIC FIELD. IT IS FOUND THAT IN THE PRESENCE OF AN ELECTRIC FIELD, AN ISOTROPIC BUT NONPARABOLIC ENERGY DISSIPATION LAW LEADS TO THE APPEARANCE OF ADDITIONAL TERMS IN THE CONDUCTANCE TENSOR, WHICH ARE OF RESONANT NATURE AT THE CYCLOTRON AND DOUBLE CYCLOTRON FREQUENCY. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT POLUPROVODNIKOV, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--MICROWAVE CONDUCTANCE IN CONSTANT ELECTRIC AND MAGNETIC FIELDS FOR
A PARABOLIC LAW OF CARRIER ENERGY DISSIPATION -U-
AUTHOR-(02)-ALMAZOV, L.A., DYKMAN, I.M.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA TVERDOGO TELA, VOL. 12, MAR. 1970, P. 814-819

DATE PUBLISHED----MAR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MICROWAVE, KINETIC EQUATION, ELECTRIC CONDUCTIVITY, CONSTANT
MAGNETIC FIELD, ELECTRIC FIELD, CYCLOTRON FREQUENCY, TENSOR ANALYSIS,
CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/1463

STEP NO--UR/0181/70/012/000/0814/0819

CIRC ACCESSION NO--AP0112457

UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--1600170

CIRC ACCESSION NO--AP0105314

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE PERFORMED WITH 12.4-MEV T GENERATED IN AN ELECTROSTATIC GENERATOR. DUE TO THE LARGE TOTAL CROSS SECTION OF THE (T,F) REACTION AND THE LARGE CONTRIBUTION OF P FROM THE PRIME16 O (T,P) PRIME18 O REACTION TO THE TOTAL P SPECTRUM THE CONTRIBUTION OF ACCIDENTAL COINCIDENCES INCREASED AND GOOD STATISTICAL PRECISION OF RESULTS COULD NOT BE OBTAINED. BY TAKING INTO CONSIDERATION THAT IN THE VICINITY OF THE FISSION THRESHOLD THE FORM OF THE P SPECTRUM IS DETERMINED ONLY BY THE FISSION PROBABILITY THE FISSION THRESHOLD OF PRIME239 U BY N WAS 0.065 PLUS OR MINUS 0.12 MEV. AS THE FISSION THRESHOLD, THE ENERGY AT THE HALF HEIGHT OF THE DECREASE OF THE P SPECTRUM IS TAKEN. THE FISSION THRESHOLD OF PRIME234 U IN THE REACTION PRIME233 U(T,PF) WAS 0.65 PLUS OR MINUS 0.15 MEV. ALSO, AT LOWER EXCITATION ENERGIES OF THE NUCLEUS PRIME240 U BELOW THE FISSION THRESHOLD THE PRONOUNCED FISSION IS OBSERVED.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SPECTRUM OF PROTONS FROM THE PRIME238 U(T, PF) REACTION -U-
AUTHOR--(05)-ALMAZOV, A.V., ANDREYEV, M.F., ZAVGORUDNYY, V.A., SEROV, V.I.,
SEROV, YU.A.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 136-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--TRITON BOMBARDMENT, NATURAL URANIUM, PROTON SPECTRUM, FISSION
CROSS SECTION, EXCITATION ENERGY, OXYGEN ISOTOPE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0238 STEP NO--UR/0048/70/034/001/0136/0137
CIRC ACCESSION NO--AP0105314
UNCLASSIFIED

USSR

UDC 621.382.2

ALMAZOV, A.B., KULIKOVA, YE.V., RYZHIKOV, I.V., KUZNETSOVA, YE.N., KURINNYI, V.I.

"Capacitance Of Abrupt Electron-Hole P-N Junction Allowing For Charge Of Mobile Carriers"

Elektron. tekhnika. Nauchno-tekhn. sb. Poluprovodn. pribory (Electronic Technology. Scientific-Technical Collection. Semiconductor Devices), 1970, Issue 3(53), pp 15-23 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B121)

Translation: Approximations are considered which make it possible to obtain analytical expressions for the capacitance of the space charge layer, allowing for the shielding effect of the free carriers with a low level of injection during negative and small positive biases. For consideration of an abrupt p-n junction, equal doping is assumed for both regions, disregarding the compensation of the impurity atoms and the recombination of the carriers in the space charge region. The above assumption is also correct for a high level of injection, but with the condition that the voltage at the p-n junction at some kT/q is less than the contact potential difference. An experimental test was conducted on unsymmetric p-n junctions formed by ionic doping in crystals with a concentration of acceptors $(2.5 \pm 4.0) \cdot 10^{12} \text{ cm}^{-3}$; the thickness of the n-region amounted to 0.6 micron, and the concentration of donors changed from 10^{20} to 10^{12} cm^{-3} . 2 ill. 14 ref. V.M.

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USSR

AYTBAYEV, T. KH., ALMANTYAZOVA, V. M., Tr. NII krayev. patol.
KazSSR, 1972, No 23, pp 101-103

m \mathcal{L}). Attention is given to the selective effect of the HF with respect to the cytochrome oxydase and the SO₂ with respect to the succinate dehydrogenase and also the sensitivity of the brain of the animals to the effect of both compounds on the MPC level.

USSR

UDC 615.916:546

AYTBAYEV, T. KH., ALMANIYAZOVA, V. M.

"Combined Effect of Hydrogen Fluoride and Sulfur Anhydride on the Activity of Certain Respiratory Enzymes of the Brain and the Oxygen Requirement of Experimental Animals"

Tr. NII krayev, patol. KazSSR (Works of the Scientific Research Institute of Marginal Pathology of the Kazakh SSR), 1972, No 23, pp 101-103 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.087)

Translation: For four months a rat was subjected to inhalation poisoning (six hours a day six times a week) with HF (first group), SO₂ (second group), in concentrations equal to the MPC, 1/5 MPC on the MPC level (third group) or 0.5 MPC (fourth group). The activity of the succinate dehydrogenase (SDH) in the brain cells in the animals of the first, second, third and fourth groups was 4.8, 5.8, 6 and 8.1 mg of formazine (9.43 in the control); the activity of the cytochrome oxidase was 22, 12, 33 and 34 provisional units (176 in the control). The O₂ content per hour per 100 grams of animals was 358.2, 254, 221 and 229 ml (in the amount of 192.7 1/2

USSR

UDC 535.347.4.0

ALMASHIN, A. S., ISHAKOV, B. O., KOLBENKOVA, N. V.

"Photoelectric Sighting Device in the IRF-452 Refractometer and the Influence of Its Operating Accuracy"

Dokl. Vses. soveshch. Optich. i titrimetrich. analitichesk. khim., vol. 10, No. 2 (Reports of the All-Union Conference on Optical and Titrimetric Analysis of Liquid Media, 1971, Part 2), Tbilisi, 1971, pp 7-29 (English transl. in Izmeritel'naya Tekhnika, No 3, Mar 72, Abstract No 3.5.1967)

Translation: The optical schematic of the IRF-452 laboratory refractometer based on the U-prism method and equipped with a special photoelectric device which insures objective sighting and broadening of the spectral measured range to 2.5 microns is presented. The refractometer is designed to determine the index of refraction and dispersion of solid and liquid media with an accuracy to $2 \cdot 10^{-5}$. The results of experimental testing demonstrated satisfactory reproducibility of the readings in the spectral range from 4000 Å to 1500 Å with complete assurance of the accuracy requirements for measuring the index of refraction to $2 \cdot 10^{-5}$. The bibliography has 5 citations.

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- 131 -

2/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0124363
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE DIELS ALDER REACTION OF MALEIC
ANHYDRIDE WITH PHME GAVE
3,6,ENDO,ETHENO,9,BICYCLO(2,4)OCTANE,6,METHYL,1,2,9,10,TETRACARBOXYLIC
ACID DIANHYDRIDE (I) (E. GRAVENSTEIN, ET AL., 1961). THE
POLYCONDENSATION OF I WITH BIFUNCTIONAL AMINES IN HCONHC SUB2 SOLN.
UNDER AR GAVE POLYAMIDES. HEATING THE POLYAMIDES LESS THAN OR EQUAL TO
300DEGREES, FOLLOWED BY ANNEALING 3 HR AT 300DEGREES IN VACUO GAVE HEAT
STABLE POLYIMIDES (AMINE USED, DECOMPN. TEMP. IN AIR GIVEN): BENZIDINE,
500DEGREES; (P,H SUB2 HC SUB6 H SUB4) SUB2 O, 410DEGREES;
P,XYLENEDIAMINE, 400DEGREES; M,XYLENEDIAMINE, 390DEGREES; (P,H SUB2
NC SUB6 H SUB4) SUB2, 412DEGREES; HEXAMETHYLENEDIAMINE, 380DEGREES.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF POLYMERS BASED ON AN ADDUCT OF TOLUENE AND MALEIC
ANHYDRIDE -U-
AUTHOR-(03)-ALMABEKOV, O.A., ZHUBANOV, B.A., RAFIKOV, S.R.
COUNTRY OF INFO--USSR
SOURCE--TR. INST. KHIM. NAUK, AKAD. NAUK KAZ. SSR 1970, 28, 83-7
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--MALEIC ANHYDRIDE, TOLUENE, POLYCONDENSATION, AMINE, POLYAMIDE
COMPOUND, POLYIMIDE RESIN, THERMAL STABILITY, DIAMINE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0691 STEP NO--UR/0000/70/028/000/0083/0087

CIRC ACCESSION NO--AT0124363
UNCLASSIFIED

USSR

ALLSAJU, V., Tr. vychisl. tsentra. Tartus. un-t, 1971, vyp. 23, pp 18-31

with subsequent conversion thereof to form (1)-(3) by substituting

$$y_j = \begin{cases} x_j - 1/2 & \text{for all } j \in T, \\ x_j & \text{for all } j \notin T. \end{cases}$$

Rule II then reduces to calculation of \tilde{Y}^* according to the formula

$$\tilde{y}^* = \begin{cases} \lfloor x_j^* \rfloor, & \text{if } j \in T \text{ and } c_j < 0, \\ \lfloor x_j^* \rfloor + 1, & \text{if } j \in T \text{ and } c_j > 0, \\ x_j, & \text{if } j \notin T. \end{cases}$$

Possible improvements of the approximation method are considered. A geometric interpretation is given. Two numerical examples are presented.

h_1/h

USSR

ALLSALU, V., Tr. vychisl. tsentra. Tartus. un-t, 1971, vyp. 23, pp 28-31

for which

$$z(\bar{Y}) = \max \{z(Z), Z(Q_Y) \cap M\}.$$

Rule I is so constructed that as rule II we can limit ourselves to the calculation of point \bar{Y}^* -- the optimum T-round-off of the auxiliary problem. For this purpose, region M' of the plans of the auxiliary problem must be such that $M' \subset N$, where

$$N = \{X \in M, Q_X \cap M \neq \emptyset\};$$

i.e., M' must be contained in the set of those plans of problem (1)-(3) which have optimum T-round-offs. The additional assumption is introduced that set N is not empty.

It is shown that the auxiliary problem can be taken in the following form (rule I):

$$\begin{aligned} \sum_{j=1}^n c_j x_j &\rightarrow \max, \\ \sum_{j=1}^n a_{ij} x_j &\leq b_i - \frac{1}{2} \sum_{j \in I} a_{ij} \bar{x}_j, \\ x_j &\in [1/2, 1] \text{ for } j \in I, \\ x_j &\geq 0 \text{ for all } j \in T. \end{aligned}$$

USSR

ALLSALU, V., Tr. vychisl. tsentra. Tartus. un-t, 1971, vyp. 23, pp 18-31

approximate method for solution of problem (1)-(4) is suggested, the general scheme of which is as follows: In accordance with a certain rule I, a new (auxiliary) problem of type (1)-(3) with set of plans $M' \subset M$ is compiled and its optimal plan Y^* found. Using point Y^* , we find the required approximate solution of problem (1)-(4). Derivation of rules I and II involves a round-off operation: the author calls the integer nearest to t the round-off of real number t (if $\{t\} = 1/2$, there are two round-offs for t). This being the case, the vector consisting of the round-offs of the corresponding components is naturally said to be the round-off of vector $Y = (y_1, \dots, y_n)$. Finally, the vector obtained from Y by replacing components y_j with their round-offs only if $j \in T$ is said to be the T -round-off of vector Y . It is not hard to see that set Q_Y of all round-offs of point Y contains 2^k points, where k is the number of indices $j \in T$ for which $\{y_j\} = 1/2$.

If set $Q_Y \cap M$ is nonempty, point Y has the "optimal T -round-off" of Y ,

2/4

Higher Algebra & Geometry and Topology

USSR

UDC 51

ALLSAJU, V."Method of Approximate Solution of Integral Linear-Programming Problem"

Tr. vychisl. tsentra. Tartus. un-t (Works of Computer Center of Tartu University), 1971, vyp. 23, pp 18-31 (from RZh-Matematika, No 5, May 72, Abstract No 5V420 by YU. FINKEL'SHTEYN)

Translation: The article considers the problem

$$z = z(X) = \sum_{j=1}^n c_j x_j \rightarrow \max, \quad (1)$$

$$\sum_{j=1}^n a_{ij} x_j \leq b_i, \quad i = 1, \dots, m, \quad (2)$$

$$x_j \geq 0, \quad j = 1, \dots, n, \quad (3)$$

x_j is an integer for all

$$j \in T \subset \{1, 2, \dots, n\}. \quad (4)$$

It is assumed that constraints (2)-(3) are nonrigid. Symbols: M -- set of plans of problem (1)-(3), x^* -- optimal plan of problem (1)-(3). An

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Acc. Nr:

AP0044404

Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal, 1970, Vol 56,
Nr 1, pp 38 - 47

BEHAVIORAL AND VISCERAL REACTIONS ELICITED BY CHEMICAL
STIMULATION OF THE HYPOTHALAMUS AND SEPTUM IN CATS

Vakking, V. A.; Allikmets, L. Ed.

Department of Psychiatry and Central Medical Research Laboratory of Tartu University,
Tartu, Estonian SSR

In experiments on 46 cats in free behavior situation the effects of injection of acetylcholine, noradrenaline and serotonin into the hypothalamic, preoptic and septal regions were investigated. Emotional-affective reactions of negative characteristics were elicited only by acetylcholine into the hypothalamus. After microinjection of acetylcholine into the lateral septal and dorsal preoptic regions behavioral induction and sleep occurred. Visceral (autonomic) reactions were elicited both by acetylcholine and serotonin microinjections into all brain structures investigated. Behavioral and visceral effects of noradrenaline were significantly weaker than those of acetylcholine and serotonin. Preliminary intramuscular or intracerebral injection of benactyzine (amivyl), imipramine and amitriptyline weakened or blocked the effects of acetylcholine. Imipramine and amitriptyline intensified visceral effects of serotonin.

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USSR

ALLIKMETS. I. KH., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. N. Pavlova,
Vol 22, No 3, May/Jun 72, pp 597-602

of the serotonergic system and that the manifestation of the reaction is
mediated by the alpha-adrenergic system.

USSR

UDC 615.78

ALLIKMETS, L. KH., Central Medical Scientific Research Laboratory, Tartu University

"The Influence of Dopamine-, Adren-, and Serotonergic Substances on Cholinergic Emotional Reactions of Hypothalamic Origin"

Moscow, Zhurnal Vysshey Nervnoy Dayatel'nosti imeni I. N. Pavlova, Vol 22, No 3, May/Jun 72, pp 597-602

Abstract: In chronic experiments on 16 cats, cholinergic stimulation of anterior and central hypothalamic regions (injections of 200-300 μ g of acetylcholine through implanted needles) elicited affective poses, signs of alertness and fear, aggressive vocalization, aggression, and escape. These reactions were blocked or shortened by atropine and scopolamine, which are anticholinergic, and by phentolamine, which blocks alpha-adrenergic sites. Neither propranolol (which blocks beta-adrenergic sites), nor haloperidol (which blocks dopaminergic sites), nor methysergid (which is an antagonist to serotonin) inhibited the aggressive and defensive reactions. Seemingly paradoxically, amphetamine, DHA in large doses, and tryptophan (serotonia precursor) also exerted inhibitory effects. The results confirm the previously established conclusion that the hypothalamic trigger mechanism of the fight and flight reaction is E-cholinergic. Results also indicate that its sensitivity is determined by the activity

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USSR

EPSHTEYN, I. M., et al., Sovetskoye Zdravookhraneniye Kinyaii, No 2,
Mar/Apr 72, pp 7-10

with exercises. A lower RGO in the cerebral cortex than in the calf muscles is attributed to the presence of glial cells in the brain which are characterized by a slow oxidative process. The physical exercises inhibited to some extent the oxidative processes in the brain, although the initial adaptation stages to the hypoxia are characterized by acceleration of the excitation processes in the cerebral cortex. Sharply reduced oxygen consumption by the calf muscles during the first several days at 5,200 m is attributed to low permeability of the muscle fibers by oxygen. The oxidative activity in the same muscles increased considerably after physical exercises. Evidently the physical load is more powerful factor than hypoxia with respect to oxygen consumption by muscles.

2/2

USSR

UDC 612.273.24616-003.96

EPSHTEYN, I. M., ALLIK, T. A., KOROBKOV, A. V., AYDAPALAYEV, A. A.,
DZHUNUSHEV, M. D., AND KULEV, A. N., All-Union Scientific Research Institute
of Physical Education, and Kirgiz State Medical Institute

"Adaptation Mechanisms of the Cerebral Cortex and of Skeletal Muscles to
Hypoxia"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 2, Mar/Apr 78, pp 7-10

Abstract: The utilization of oxygen by the cerebral cortex and skeletal
muscles was determined on the basis of the rate constant of oxygen consump-
tion (RCOC). The control group of rats was kept in Frunze and the experimental
group was taken to a 3,200 m elevation, where pO_2 was 103 mm Hg. Consump-
tion of oxygen by the brain tissues was recorded by platinum electrodes
implanted at a depth of 500 μ . The RCOC by the brain cells was 0.0119,
0.0073, 0.0077, 0.0084, 0.0042, 0.0044 on the 3d, 10th, 20th, 30th, 45th,
and 60th days at 3,200 m, respectively (controls 0.0055). Physical exercises
(30 min on treadmill) changed these values to 0.0109, 0.0050, 0.0042,
0.0038, 0.0046, 0.0044, respectively (control 0.0054). The RCOC of the calf
muscles was 0.0300, 0.003, 0.073, 0.11, 0.23, 0.24 without exercises
(control 0.091), and 0.161, 0.161, 0.178, 0.18, 0.12, 0.18 (control 0.148)
1/2

USSR

ALLEN, F. E.

"Method of Determination of Information Connections in Programs"

Teoriya Programmir. Ch. 2 [Programming Theory. Part 2 -- Collection of Works], Novosibirsk, 1972, pp 136-143 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V648).

Translation: Two related problems concerning information connections in programs are formulated. Both formulations are based on representation of programs in the form of graphs of transitions. The method of automatic determination of information connections in programs written in high level algorithmic languages is schematically described. Information connections in a program being analyzed or converted refers to information necessary for optimization of programs, for automatic detection of parallelism in programs, and for solution of certain problems in expanded languages.

V. Mikheyev

1/1

SPES 15000
6-73

VI-3. OBTAINING SINGLE CRYSTALS OF CdSma_2 ALLOYED WITH A^{3+} COMPOUNDS

[Article by A. Allazarov, Ch. Dovletmuradov, M. Seretov, Ashanadi, Nevostitikh, III Symposium on Progresses in Solid State Physics, Vol. 1, No. 1, 1972, p. 101, Leninsk, Russian, 12-17 June, 1972, p. 101]

A review is made of the basic difficulties encountered when growing single crystals of ternary compounds of the $\text{A}^{3+}\text{B}^{2+}_2$ type. A procedure is described for obtaining single CdSma_2 crystals alloyed with A^{3+} compounds to 0.1-0.5 atomic percent. The CdSma_2 crystals were alloyed directly in the growth processes. The single crystals of the given compound with A^{3+} admixtures (GaAs , GaSb , InAs , InSb) were obtained by the methods of zone recrystallization and the Bridgman method. After the zone melting, the crystals obtained were electrically uniform with respect to length of the bar. It was detected that the properties of the alloyed crystals depend both on the chemical nature and on the introduced quantity of the selected admixture. Single crystals alloyed with GaAs and GaSb have both n and p-type conductivity with a charge carrier concentration of $8 \cdot 10^{17}$ - $2 \cdot 10^{18} \text{ cm}^{-3}$. The basic parameters defining the crystallization process and their interrelation are presented.

A study was made of the effect of the characteristic pinholes of the lattice on the electrical properties of single CdSma_2 crystals. The annealing of the crystals in arsenic vapor leads to a decrease in the concentration of the charge carriers from $2 \cdot 10^{18} \text{ cm}^{-3}$ to $2 \cdot 10^{17} \text{ cm}^{-3}$. It is proposed that this variation of the electrical properties of the single crystals of CdSma_2 can be connected with the formation of vacancies in one sublattice or another.

The results of the electrical properties of the alloyed single crystals of CdSma_2 obtained by different methods are compared.

ALLAN AZAROV, A.

2/2 014 UNCLASSIFIED PROCESSING DATE--300CT70
CIRC ACCESSION NO--AP0123956
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF DEFOLIATION WITH
BUTIPHOS, CYANAMIDE, AND WITH MG(CLO SUB3) SUB2 UNDER VARIOUS CLIMATIC
CONDITIONS AND DEVELOPMENT OF COTTON PLANTS ARE DISCUSSED. THE MOST
EFFECTIVE WAS BUTIPHOS, ESP. WHEN SPRAYED AT 3 KG-HA. FACILITY:
VSES. NALCH. ISSLED. INST. KHLUPKOVOD., AKKHAVAK, USSR.

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TITLE--EFFECTIVENESS AND PERIODS OF COTTON DEFOLIATION UNDER VARIOUS
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Hematology

USSR

UDC 616.361.018.5

ALLAVERDYAN, S. N.

"Electrophoretic Studies of Plasma Proteins Preserved With Polyvinyl Alcohol"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 6, Jun 70, pp 93-98

Abstract: To determine the safety of polyvinyl alcohol (PVA) as a blood preservative, the author prepared a specimen of plasma with polyvinyl alcohol-glucose-citrate and glucose-citrate blood. The plasma, together with erythrocytes, had been kept for 1 to 30 days. Electrophoretic analysis showed no negative effect of PVA on the character of fractionation of proteins and no tendency of PVA to form complexes with blood proteins. Shifts in the general protein content were insignificant even on the 30th day.

USSR

UDC: 621.372.4

ALLAHEENURMAN, E. G., KURCHEN, V. N., SPYTRON, A. P.

"Nonstationary Excitation of Mas in Oscillation in a Resonant Circuit"

Kratiye soobshch. po fiz. (Brief Reports on Physics), 1984, No. 1, p. 108-110
(from *RZh-Radiotekhnika*, No 11, Dec '84, abstract No 2111-84, A. P.)

Translation: It is shown that the presence of spurious oscillations in the mode of undamped pulsations in resonant circuits leads to a shift in the emission close to the threshold. Ordinary equations of motion with regard to spontaneous emission are considered for studying the possibility of oscillation. Multistage systems are analyzed for the possibility of recommending a criterion rule to be used in the design of the feedback to obtain long-term oscillation.

USSR

DANILOV, V. I., et al, Biologicheskii Zhurnal Armenii, Vol 23, No 8, Aug 70,
pp 26-34

creates conditions for a photomagnetic effect in the organ, leading to the formation of diffused electric waves which tend to excite the optical nerve fibers. On this basis, the pecten may be regarded as performing the functions of a biological photomagnetic magnetometer. Further experimental and theoretical study of this hypothesis are necessary.

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USSR

UDC 612.84

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DANILOV, V. I., DEMIRCHOSLYAN, G. G., AVETICIAN, L. A., ALLAKHVERDIAN, M. A., GRIGORYAN, Sh. V., and SAVERIGIAN, G. Kh., Laboratory of Optical Reception, Academy of Sciences Armenian SSR

"Possible Mechanisms of the Magnetic Sensitivity of Birds"

Yerevan, Biologicheskii Zhurnal Armenii, Vol 23, No 8, Aug 70, pp 26-34

Abstract: The possible role of the pecten in the eyes of birds as a photoreceptor and orientation factor which responds to Earth's magnetic fields during flight is discussed. The structure of the organ is described, and the results of investigations of its role and functions are reported. The processes which take place in the pecten of birds under the influence of an alternating magnetic field are as follows: As a result of irregularities in flight paths (e.g., changes in speed and altitude, head movements, etc.) the magnetic field stimulates heparin secretion and causes its concentration in the vascular network of the pecten. As a result of its negative electric charge and chemical properties, the heparin produces the excitation of the central nervous system. Through electromagnetic induction the alternating magnetic field causes the appearance of electromagnetic forces in the blood vessels of the pecten, which tend to irritate the vascular receptors of the pecten and the optical nerve fibers (with which the pecten is in contact). The combined action of the magnetic field and light on the pecten

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CHEMICAL ABST. 4-70

Ref. Code

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74201d Thermal stability of alkali metal hexachlorotellurates.
~~Author: G. R.; Serebrennikova, G. M.; Stepin, B. D.~~
 (USSR). *Zh. Neorg. Khim.* 1970, 15(1), 77-80 (Russ). Thermal
 disson. of $M_2[TeCl_6]$, where $M = K, Rb, \text{ or } Cs$, was studied
 by DTA and by deriv. thermogravimetry. $Rb_2[TeCl_6]$ is
 thermally most stable but the temp. of max. rate of thermal
 decompn. increases with the cations in the order $K < Rb < Cs$.
 Decompn. of $[TeCl_6]^{2-}$ is very complex; it decompn. to $nTeCl_4$ +
 $mTeO_2$. The final decompn. products are TeO_2 and MCl .

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KIR'YANOV, G. I., ALLAKHVERDOV, A. Sh., GUSEV, A. V., and KOLGANOVA, I. V.

"Development of a Pulsed Neutron Generator to Study Reactors"

Tr. VNII radiats. tekhn. (Works of the All-Union Scientific Research Institute of Radiation Technology), 1970, No 5, pp 265-274 (from RZh-Fizika, No 4, Apr 71, Abstract No 4V583)

Translation: A neutron generator was developed with a mean neutron flux of 10^7 neutron/sec with a pulse repetition rate of up to 20 Hz and a pulse width of ~ 1.5 μ sec. The length of the neutron source is 1100 mm and the diameter is 48 mm. Measurement of the operating stability of the generator showed that in 2 hours of operation the maximum deviation of the output of neutrons from the mean value did not exceed 8%. O. V. Sh.

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